

CLAIMS

What is claimed is:

- 5 1. A method for providing mobility support from a first SIP-compliant network environment to a second SIP-compliant network environment, comprising:
- assigning a personal identifier to a mobile user;
- 10 associating said personal identifier to a mobile terminal;
- associating a first temporary IP address from said first environment with said personal identifier;
- 15 receiving packets of data at said mobile terminal from a corresponding host wherein each of said packets of data further comprises a source IP address and a destination IP address, said destination address being said first temporary IP address and said source IP address being said IP address associated with said corresponding host;
- 20 monitoring said mobile terminal to sense movement of said mobile terminal from said first environment to said second environment;
- associating a second temporary IP address from said second environment with said personal identifier;

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forwarding to said second temporary IP address packets of data having said first temporary IP address as said destination address;

sending said second temporary IP address to said source IP address; and

discontinuing forwarding of packets of data having said first temporary IP address as said destination address to said second temporary IP address.

*SUBA<sup>10</sup>* 2. In a network having a plurality of nodes, a method for forwarding transient data packets from a corresponding host node in a first SIP-compliant network environment to a mobile node, said mobile node having traveled from said first SIP-compliant network environment to a second SIP-compliant network environment, said method comprising:

reinviting said corresponding host node to said mobile node using SIP INVITE; said mobile node in said second SIP-compliant network environment;

creating a short lived tunnel between a first edge router and controller located within said first SIP-compliant network environment and a second edge router and controller located within said second SIP-compliant network environment using the SIP INFO method;

forwarding said transient data packets to said mobile node via said tunnel; and

discontinuing said forwarding of said data packets to said mobile node after a brief time-out period.

3. For use in a SIP-compliant network having a plurality of nodes, a SIP\_EYE Agent for monitoring and tracking all TCP connections and their related identifiers within a mobile node, said SIP\_EYE Agent comprising:

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a record of each of said TCP connection, each record having associated therewith:

- (a) an original IP address of said mobile node,
- (b) a previous IP address of said mobile node,
- 10 (c) a current IP address of said mobile node and
- (d) an original IP address of a corresponding host node;

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wherein said original IP address of said mobile node is the IP address of said mobile node at the beginning of the TCP connection, said previous IP address of said mobile node is the last IP address of said mobile node just before the current IP address of said mobile node, the current IP address of said mobile node is the current IP address of said mobile node and said original IP address of said corresponding host node is the IP address of said corresponding host at the beginning of the TCP connection.

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4. In a SIP-compliant network having a plurality of nodes, a method for reducing the amount of time a mobile node has to register and configure itself in a visiting environment, comprising:

adding a registration/hand-off option to the SIP REGISTER method; and

equipping a SIP registrar node with a DHCP client node and co locating said SIP registrar node with a DHCP server node to enable said SIP registrar node to assign an IP address to said

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mobile node thereby reducing IP address acquisition time.

5. A method according to claim 4 further comprising replicating a profile of said mobile node in said visiting environment to reduce said authentication time of said mobile node.

5 6. In a SIP-compliant network having a plurality of nodes, a method to support IP address binding within said network, comprising augmenting a SIP INFO message with an instruction to bind a first IP address to a second IP address.

*SWA 10* 7. A computer-readable medium having computer-executable instructions for performing a  
10 method for providing mobility support from a first SIP-compliant network environment to a second SIP-compliant network environment, comprising:

assigning a personal identifier to a mobile user;

15 associating said personal identifier to a mobile terminal;

associating a first temporary IP address from said first environment with said personal identifier;

20 receiving packets of data at said mobile terminal from a corresponding host wherein each of said packets of data further comprises a source IP address and a destination IP address, said destination address being said first temporary IP address and said source IP address being said IP address associated with said corresponding host;

monitoring said mobile terminal to sense movement of said mobile terminal from said first environment to said second environment;

associating a second temporary IP address from said second environment with said personal  
5 identifier;

forwarding to said second temporary IP address packets of data having said first temporary IP address as said destination address;

10 sending said second temporary IP address to said source IP address; and

discontinuing forwarding of packets of data having said first temporary IP address as said destination address to said second temporary IP address.

15 8. A computer-readable medium having computer-executable instructions for performing a method to be executed in a network adapted to support mobility having a plurality of nodes; said method for forwarding transient data packets from a corresponding host node in a first SIP-compliant network environment to a mobile node, said mobile node having traveled from said first SIP-compliant network environment to a second SIP-compliant network environment, said  
20 method comprising:

reinviting said corresponding host node to said mobile node using SIP INVITE; said mobile node in said second SIP-compliant network environment;

creating a short lived tunnel between a first edge router and controller located within said first SIP-compliant network environment and a second edge router and controller located within said second SIP-compliant network environment using the SIP INFO method;

5 forwarding said transient data packets to said mobile node via said tunnel; and

discontinuing said forwarding of said data packets to said mobile node after a brief time-out period.

10 9. A computer-readable medium having computer-executable instructions for performing a method to be executed in a SIP-compliant network having a plurality of nodes, said method for reducing the amount of time a mobile node takes to register and configure itself in a visiting environment, comprising:

adding a registration/hand-off option to the SIP REGISTER method; and

15 equipping a SIP registrar node with a DHCP client node and co locating said SIP registrar node with a DHCP server node to enable said SIP registrar node to assign an IP address to said mobile node thereby reducing IP address acquisition time.

20 10. A computer-readable medium having computer-executable instructions for performing a method according to claim 9 further comprising replicating a profile of said mobile node in said visiting environment to reduce said authentication time of said mobile node.

25 11. A computer-readable medium having computer-executable instructions for performing a method to be executed in a SIP-compliant network having a plurality of nodes, said method to support IP address binding within said network, comprising augmenting a SIP INFO message

with an instruction to bind a first IP address to a second IP address.

*Sub A<sup>10</sup>* 12. A system for providing mobility support from a first SIP-compliant network environment to a second SIP-compliant network environment, comprising:

5 a processor programmed to:

assign a personal identifier to a mobile user;

associate said personal identifier to a mobile terminal;

associate a first temporary IP address from said first environment with said personal identifier;

10 receive packets of data at said mobile terminal from a corresponding host wherein each of said packets of data further comprises a source IP address and a destination IP address, said destination address being said first temporary IP address and said source IP address being said IP address associated with said corresponding host;

15 monitor said mobile terminal to sense movement of said mobile terminal from said first environment to said second environment;

associate a second temporary IP address from said second environment with said personal identifier;

forward to said second temporary IP address packets of data having said first temporary IP address as said destination address;

20 send said second temporary IP address to said source IP address; and

discontinue forwarding of packets of data having said first temporary IP address as said destination address to said second temporary IP address.

13. A system for forwarding transient data packets addressed to a mobile node from a  
25 corresponding host node in a first SIP-compliant network environment node, said mobile node

having traveled from said first SIP-compliant network environment to a second SIP-compliant network environment, said method comprising:

a processor programmed to:

reinvite said corresponding host node to said mobile node using SIP INVITE; said

5 mobile node in said second SIP-compliant network environment;

create a short lived tunnel between a first edge router and controller located within said first SIP-compliant network environment and a second edge router and controller located within said second SIP-compliant network environment using the SIP INFO method;

forward said transient data packets to said mobile node via said tunnel; and

10 discontinue said forwarding of said data packets to said mobile node after a brief time-out period.

14. A system for reducing the amount of time a mobile node takes to register and configure itself in a visiting SIP-compliant network environment, comprising:

15 a processor programmed to:

add a registration/hand-off option to the SIP REGISTER method; and

equip a SIP registrar node with a DHCP client node and co locating said SIP registrar node with a DHCP server node to enable said SIP registrar node to assign an IP address to said mobile node thereby reducing IP address acquisition time.

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15. A system according to claim 14 wherein said processor is further programmed to replicate a profile of said mobile node in said visiting environment to reduce said authentication time of said mobile node.

25 16. A system for supporting IP address binding within a SIP-compliant network having a



plurality of nodes, comprising: a processor programmed to augment a SIP INFO message with an instruction to bind a first IP address to a second IP address.